

FIG. 1

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Inv nitors: Linda B. Couto, Peter C. Colosi and Xiaobing Qian

Title: ADENO-ASSOCIATED VECTOR COMPOSITIONS FOR EXPRESSION OF FACTOR VIII

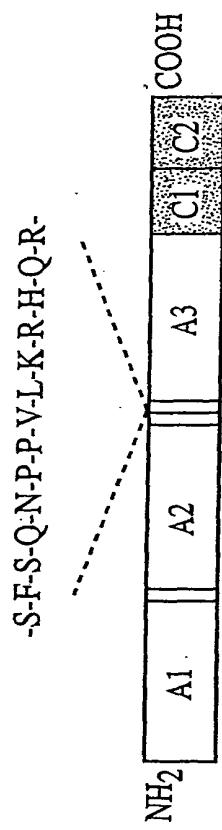


FIG. 2

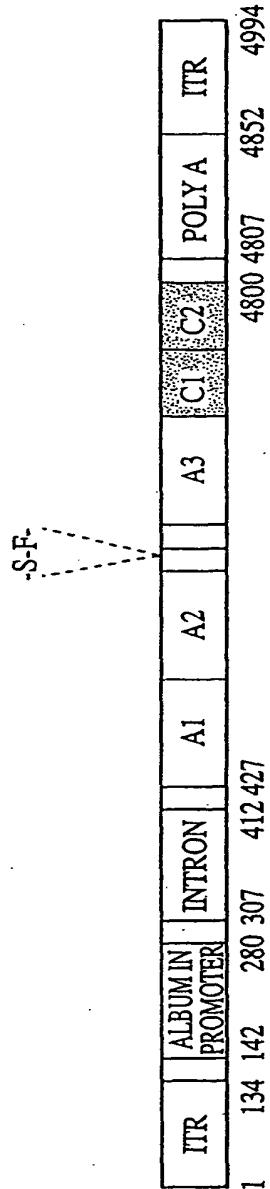


FIG. 3

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Inv ntors: Linda B. Couto, Peter C. C. Tsui and Xiaobing Qian

Title: ADENO-ASSOCIATED VECTOR COMPOSITIONS FOR EXPRESSION OF FACTOR VIII

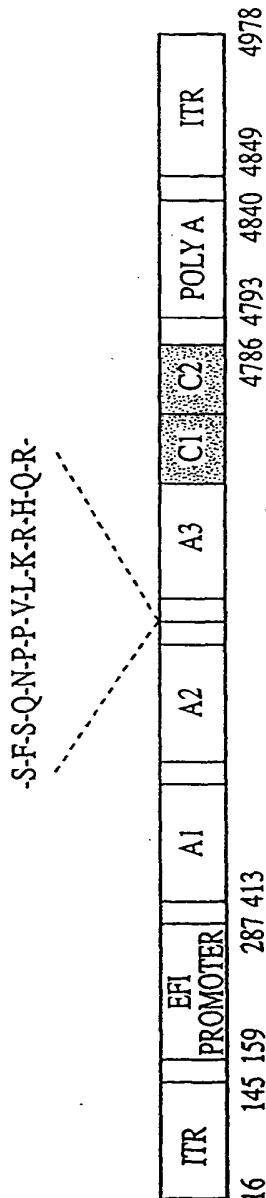


FIG. 4

FIG. 5A
FIG. 5B
FIG. 5C
FIG. 5D

## FIG. 5

CAGCTGCGCGCTCGCTCGCTCACTGAGGCCGCCGGCAAAGCCCGGGCGTCGGCGACCTTGGTCGCCCGGCCTCAGT  
 GAGCGAGCGAGCGCGCAGAGAGGGAGTGGCAACTCCATCACTAGGGTCTCTGCGCCGCCAGGAATGTTGTTCTT  
 AAATACCATCCAGGAATGTTGTTCTAAATACCATCCAGGAATGTTGTTCTAAATACCATCTACAGTTATTGTT  
 AAAGAAGTATATTAGAGCGAGTCTTCTGCACACAGATCACCTTCCGGTGCAGCCCTAGGCAGGTAAGTGCGGTG  
 TGGTTCCCGCGGGCCTGGCCTCTTACGGTTATGCCCTGCGTGCCTGAATTACTGACACTGACATCCACTTTCT  
 TTTCTCCACAGGTATCATTCCACCATGCAAATAGAGCTCCACCTGCTCTTCTGTGCCTTTGCATTCTGCTTT  
 AGTGCACCCAGAAGATACTACCTGGGTGCAGTGGACTATGCAAAAGTGATCTGGTGCAGCTGCCTGT  
 GGACGCAAGATTCCCTCCTAGAGTGCACAAATCTTCAACACCTCAGTCGTGTACAAAAAGACTCTGTTTAG  
 AATTACGGATCACCTTCAACATCGCTAACGCCAAGGCCACCCCTGGATGGTCTGCTAGGTCTTACCATCCAGGCTGAG  
 GTTTATGATACAGTGGTCTTACACTTAAGAACATGGCTCCATCCTGTCAGTCTTCTATGCTGTTGGTGTATCCTACTG  
 GAAAGCTCTGAGGGAGCTGAATATGATGATCAGACCAAGTCAAAGGGAGAAAGAAGATGATAAAGTCTCCCTGGTGGAA  
 GCCATACATATGTCGGCAGGTCTGAAAGAGAATGGCCAATGCCCTGACCCACTGTGCCTTACCTACTCATATCTT  
 TCTCATGTGGACCTGGTAAAGACTTGAATTCAAGGCCTCATGGAGCCCTACTAGTATGTAGAGAAGGGAGTCTGGCAA  
 GGAAAAGACACAGACACCTGCACAAATTACTACTTTGCTGTATTGATGAAGGGAAAAGTGGCACTCAGAAACAA  
 AGAAACTCCTTGATGCAGGATAGGGATGCTGCATCTGCTCGGGCTGGCTAAATGCACACAGTCAATGGTATGAAAC  
 AGGTCTCTGCCAGGTCTGATTGGATGCCACAGGAATCAGTCTATTGGCATGTGATTGGATGGCACTCCTGAAGT  
 GCACTCAATATTCTCGAAGGTACACATTCTGTGAGGAACCATGCCAGGCCTTGGAAATCTGCCAATAACTT  
 TCCTTACTGCTCAAACACTCTTGATGGACCTTGGACAGTTCTACTGTTGTCATATCTCTTCCACCAACATGATGGC  
 ATGGAAGCTTATGTCAGAGACAGCTGTCCAGAGGAACCCAACTACGAATGAAAAATAATGAAGAAGCGGAAGACTA  
 TGATGATGATCTTACTGATTCTGAAATGGATGTGGTCAGGTTGATGATGACAACACTCTCCTTCTTATCCAAATCGT  
 CAGTTGCCAAGAACATCCTAAACTTGGGTACATTACATTGCTGCTGAAGAGGAGGACTGGACTATGCTCCCTAGTC  
 CTCGCCCCGATGACAGAAGTTATAAAAGTCAATATTGAACAAATGCCCTCAGCGGATTGGTAGGAAGTACAAAAAGT  
 CCGATTATGGCATACACAGATGAAACCTTAAGACTCGTGAAGCTATTGAGCATGAATCAGGAATCTGGACCTTAC  
 TTTATGGGAAGTTGGAGACACACTGTTGATTATTTAAGAATCAAGCAAGCAGACCATATAACATCTACCCACGG  
 ATCACTGATGTCGCTTGTATTCAAGGAGATTACCAAAGGTGAAACATTTGAAGGATTTCACATTCTGCCAGG  
 AGAAATATTCAAATATAATGGACAGTGAAGACTGAGATGGCCAACATAATCAGATCCTCGGTGCCTGACCCGCTATT  
 ACTCTAGTTGTTGTTAATATGGAGAGAGATCTAGCTTCAGGACTCATTGCCCTCTCCTCATCTGCTACAAAGAATCTGTA  
 GATCAAAGAGGAACCAAGATAATGTCAGACAAGAGGAATGTCATCCCTGTTCTGTATTGATGAGAACCGAAGCTGGTA  
 CCTCACAGAGAATATACAACGCTTCTCCCAATCCAGCTGGAGTGCAGTTGAGGATCCAGAGTTCAAGCCTCCAACA  
 TCATGCACAGCATCAATGGCTATGTTTGATAGTTGCACTGAGTTGTCAGTTGTCATGAGGTGGCATACTGGTACATT  
 CTAAGCATTGGAGCACAGACTGACTTCCTTCTGCTCTGATATACTTCAAAACACAAATGGTCTATGAAGA

## FIG. 5A

CACACTCACCTATTCCCATTCTCAGGAGAAACTGTCTTCATGTCGATGGAAAACCCAGGTCTATGGATTCTGGGGTGCC  
 ACAACTCAGACTTCGGAACAGAGGCATGACCGCCTTACTGAAGGTTCTAGTTGTGACAAGAACACTGGTGATTATTAC  
 GAGGACAGTTATGAAGATATTCACTTGTGAGTAAAAACAATGCCATTGAACCAAGAAGCTTCGAAATAACTCG  
 TACTACTCTTCAGTCAGATCAAGAGGAAATTGACTATGATGATACCATATCAGTTGAAATGAAGAAGGAAGATTTGACA  
 TTTATGATGAGGATGAAAATCAGAGCCCCCGCAGCTTCAAAAGAAAACACGACACTATTTTATTGCTGCAGTGGAGAGG  
 CTCTGGGATTATGGATGAGTAGCTCCCACATGTTCAAGAAACAGGGCTCAGAGTGGCAGTGTCCCTCAGTTCAAGAA  
 AGTTGTTTCCAGGAATTACTGATGGCTCCTTACTCAGCCCTTACCGTGGAGAACTAAATGAACATTGGGACTCC  
 TGGGCCATATATAAGAGCAGAAGATAATATCATGGTAACCTTCAGAAATCAGGCCCTCGTCCCTATTCC  
 TATTCTAGCCTTATTCTTATGAGGAAGATCAGAGGCAAGGAGCAGAACCTAGAAAAAACTTGTCAAGCCTAATGAAAC  
 CAAAACTTACTTTGAAAGTGAACATCATATGGCACCCACTAAAGATGAGTTGACTGCAAAGCCTGGGTTATTCT  
 CTGATGTTGACCTGGAAAAGATGTGACTCAGGCCGTATTGGACCCCTCTGGTCTGCCACACTAACACACTGAACCC  
 GCTCATGGGAGACAAGTGACAGTACAGGAATTGCTCTGTTTCAACCATTTGATGAGACCAAAAGCTGGTACTTCAC  
 TGAAAATATGGAAAGAAACTGCAGGGCTCCCTGCAATATCCAGATGGAAGATCCCACCTTAAAGAGAATTATGCTTCC  
 ATGCAATCAATGGCTACATAATGGATAACACTACCTGGTTAGTAATGGCTCAGGATCAAAGGATTCGATGGTATCTGCTC  
 AGCATGGGAGCAATGAAAACATCCATTCTATTCACTGGACATGTGTTACTGTACGAAAAAAAGAGGAGTATAA  
 AATGGCACTGTACAATCTCATCCAGGTGTTTGAGACAGTGGAAATGTTACCATCCAAGCTGGAATTGGCGGGTGG  
 AATGCCATTGGCGAGCATCACATGCTGGATGAGCACACTTTCTGGTGTACAGCAATAAGTGTCAAGCTCCCTG  
 GGAATGGCTTCTGGACACATTAGAGATTTCAGATTACAGCTTCAGGACAATATGGACAGTGGGCCAAAGCTGGCCAG  
 ACTTCATTATTCCGGATCAATCAATGCCCTGGAGCACCAAGGAGCCCTTCTGGATCAAGGTGGATCTGGCACCA  
 TGATTATTACGGCATCAAGACCCAGGGGCCGTCAAGGTTCTCCAGCCTCTACATCTCAGTTATCATCATGTAT  
 AGCTTGATGGAAGAAGTGGCAGACTTATGAGGAAATTCCACTGGAACCTTAATGGTCTTGGCAATGTGGATTC  
 ATCTGGATAAAACACAATATTTAACCTCCAATTATTGCTCGATACATCCGTTTGACCCAACTCATTATAGCATT  
 GCAGCACTCTCGCATGGAGTTGATGGCTGTGATTAAATAGTGCAGCATGCCATTGGGAATGGAGAGTAAAGCAATA  
 TCAGATGCACAGATTACTGCTCATCTTACCAATATGTTGCCACCTGGTCTCCTCAAAAGCTCGACTTCACCT  
 CCAAGGGAGGAGTAATGCCCTGGAGACCTCAGGTGAATAATCCAAAAGAGTGGCTGCAAGTGGACTTCATCTCCAGCAGT  
 CAAGATGCCATCAGGACTCTTTTCAGAATGGAAAGTAAAGGTTTCAGGGAAATCAAGACTCCTTCACACC  
 TGTGGTAACTCTAGACCCACCGTTACTGACTCGCTACCTCGAATTCAACCCAGAGTTGGTGCACCAAGATTGCC  
 TGAGGATGGAGGTTCTGGCTCGAGGCACAGGACCTACTGACTCGAGAATAAAAGATCAGAGCTCTAGAGATCTGTG  
 TGTGGTTTTGTGTCGGCGCGAGAACCCCTAGTGTGGAGTTGCCACTCCCTCTCGCGCGTCGCTCAGT  
 GAGGCCGGCGACCAAAGGTGCCCGACGCCGGGTTGCCGGCGGCCCTCAGTGAGCGAGCGAGCGCAGCTGCC  
 GCAGGACATGTGAGCAAAGGCCAGCAAAGGCCAGGAACCGTAAAAGGCCGCTGCTGGCGTTTCCATAGGCTCC  
 GCCCCCTGACGAGCATCACAAAATGACGCTCAAGTCAGAGGTGGCGAACCCGACAGGACTATAAGATAACCAGGC  
 TTTCCCCCTGGAAGCTCCCTCGCGCTCCTGTTCCGACCCCTGCCGTTACCGGATACCTGTCGCCCTTCTCC  
 GGGAGCGTGGCGCTTCTCATAGCTCACGCTGTAGGTATCTCAGTTGGTGTAGGTCGTCCTCAAGCTGGCTGTG  
 TGCACGAACCCCCCGTTCAAGCCGACCGCTGCCCTTACCGTAACATCGTCTTGAGTCCAACCCGTAAGACACGAC  
 TTATGCCACTGGCAGGCCACTGGTAACAGGATTAGCAGAGCGAGGTATGTAGGCCGTGCTACAGAGTTCTGAAGTG  
 GTGGCCTAACTACGGCTACACTAGAAGGACAGTATTGGTATCTCGCCTGCTGAAGCCAGTTACCTCGGAAAAAGAG  
 TTGGTAGCTCTTGATCCGGAAACAAACCACCGCTGGTAGCGGGTTTTGTTGCAAGCAGCAGATTACCGCAGA  
 AAAAAGGATCTCAAGAAGATCCTTGATCTTCTACGGGTCTGACGCTCAGTGGAACGAAACTCACGTTAAGGGAT

FIG. 5B

TTTGGTCATGAGATTATCAAAAGGATCTCACCTAGATCCTTTAAATTAAAAATGAAGTTAAATCAATCTAAAGTA  
TATATGAGAAACTTGGTCTGACAGTTACCAATGCTTAATCAGTGGGCACCTATCTCAGCGATCTGTCTATTCGTTCA  
TCCATAGTTGCCTGACTCCCCGTCGTAGATAACTACGATAACGGGAGGGCTTACCATCTGGCCCCAGTGTGCAATGAT  
ACCGCGAGACCCACGCTCACCGGCTCCAGATTATCAGCAATAAAACCAGCCAGCCGAAGGGCCAGCGCAGAAGTGGTC  
CTGCAACTTATCCGCTCCATCCAGTCTATTAAATTGTTGCCGGAGCTAGAGTAAGTAGTTGCCAGTTAATAGTTG  
CGCAACGTTGTTGCCATTGCTACAGGCATCGTGGTCACTGCCTCGTCTGGTATGGCTTCATTCACTGCCAGTCCGGTCCCA  
ACGATCAAGGCGAGTTACATGATCCCCATGTTGCAAAAAGCGGTTAGCTCCTCGTCCTCGATCGTTGTCAGAA  
GTAAGTGGCCCGAGTGTATCACTCATGGTTATGGCAGCACTGCATAATTCTCTACTGTATGCCATCCGTAAGATGC  
TTTCTGTACTGGTACTCAACCAAGTCATTCTGAGAATAGTGTATGCCGACCCAGTTGCTCTGCCGGGCTC  
AATACGGGATAATACCGGCCACATAGCAGAACCTTAAAGTGTATCATATTGAAACCTTCTCGGGGCAAAACTCT  
CAAGGATCTTACCGCTGTTGAGATCCAGTTGATGTAACCCACTCGTCACCCAACTGATCTTCAGCATCTTACTTCA  
ACCAGCGTTCTGGGTGAGCAAAAACAGGAAGGCAAAATGCCCAAAAAGGAATAAGGGCAGACGGAAATGTTGAAT  
ACTCATACTCTTCCTTTCAATATTATTGAGCATTTATCAGGGTTATTGTCTCATGAGCGGATACATATTGAATGTA  
TTTAGAAAATAACAAATAGGGTTCCGCGCACATTCCCCGAAAAGTGCCACCTGACGTCTAAGAAACCATTATTATC  
ATGACATTAACCTATAAAATAGGCGTATCACGAGGCCCTTCGTCGCGCTTCCGGTATGACGGTGAACACCTCTG  
ACACATGCAGCTCCGGAGACGGTCACAGCTTGTCTGTAAGGGATGCCGGAGCAGACAAGCCGTCAAGGGCGTCAG  
CGGGTGTGGCGGGTGTGGCTTAACATATGCGGCATCAGAGCAGATTGTACTGAGAGTGCACCATAAAATTGTA  
AACGTTAATATTGTTAAAATTGCGTTAAATTGTTAAATCAGCTATTAAACCAATAGGCCGAATCGCAA  
AAATCCCTATAAAATCAAAGAATAGCCCAGATAGGGTTGAGTGTGTTCCAGTTGGAACAAGAGTCCACTATTAAAGA  
ACGTGGACTCCAACGTCAAAGGGCAAAACCGTCTATCAGGGGATGCCCAACTACGTGAACCATACCCAAATCAAGT  
TTTTGGGTCGAGGTGCCGTAAGCACTAAATCGAACCCCTAAAGGGAGCCCCGATTAGAGCTTGACGGGAAAGCC  
GGCGAACGTGGCGAGAAAGGAAGGGAAAGGAAGGGAGCAGGGGGCCTAGGGCGCTGGCAAGTGTAGCGGTACGCTGC  
CGCTAACACCACACCGCCGCTTAATGCGCGCTACAGGGCGTACTATGGTTCTTGACGTATGCGTGTGAA  
TACCGCACAGATGCGTAAGGAGAAAATACCGCATCAGGCCAACCTGTGGATCACCGGAAAGGACCCGTAAGTGATA  
ATGATTATCATCATACACACGTGGAGGCCATCAAACACGTCAAATAATCAATTATGACGCAGGTATGTA  
TTAATTGATCTGCATCAACTAACGTAACAAACACTCAGACAATACAAATCAGCGACACTGAATACGGGCAACCTCAT  
GTCAACGAAGAACAGAACCCGAGAACACAACACCGAACATCCGCTTCTTAACCAATGATTGAACAAATTACATCG  
CTCTTGAGCAAAAGGGTCCGGAATTCTCAGCCTGGGTCTTGAAGCCTGCCGTGGAGACTAACGTCAAGAAAGAGA  
GCATATACATCAATTAAAGTGTGAAGAATGAACATCCCGCTTCTCCCGAACAGGACGATATTGAAATTCACT  
TAATTACGAGGGATTGCACTGAGTTGAGCTTACCACTTCTGACAGTGCAGACTGCGTGTGGCTCTGTCA  
CAGACTAAATAGTTGAATGATTAGCAGTTATGGTATCAGTCACCACCCAGGAATAATCCTCATATTATCTGTG  
TTCACCAACGCTGCCTCAATTGCTCTGAAATGCTTCCAGAGACACCTTATGTTCTATACATGCAATTACACATCAGGGTA  
ACTCATAGAAATGGTCTATTAAGCATATTTCACGAATCAGATCCACGGAGGGATCATCAGCAGATTGTTCTTAT  
TCATTTGTCGCTCCATGCGCTTGTCTTCATCTAGGGTTAAATATTACTCAAAATCTTCTGTATGAAAGATTGAGC  
ACGTTGGCCTTACATACATCTGTCGGTTGATTTCCCTCCAGAATGCCAGGACCCGACTTGTACGCAACCAATAC  
TATTAAGTGAACACATTCTTAATTTGACATAATCATCAACAAACACAAGGAGGTCAAGACCAGATTGAAACGATAAA  
AACGATAATGCAAACACTACGCGCCCTGATCACATGGAAGGTTTACCAATGGCTCAGGGTGCCTTTAAAGAAATAT  
TCGATCAAGTGCAGAAAGATTAGACTGTGAATTGTTATTCTGAACAAACGTCAACACGTCTCACATTATATTAC  
TATCTAGCCACAGATAATATTACATCGTGTAGAAAACGATAACACCGTGTAAATAAAAGGACTAAAAAGGTTGTA  
TGTTAAATTCTCAAGAAACACGCATCTTATAGAAACGTCTATGATAGGTTGAAATCAAGAGAAATCACATTGCAAT  
ACAGGGAAAATCTGCTAAAGCAGGAGTTCCGATGGTTACAAATATCCATGAACATAAAAGATATTACTACCTT

FIG. 5C

GATAATTCTATTACTATTTACTGAGAGCATTAGAACACTACACAAATCTTCCACGCTAAATCATAACGTCCGGTTCTT  
CCGTGTCAGCACGGGGCGTGGCATAATGCAATACGTGTACCGCTAAACCTGTGTCATCGTTAATTATTCCCGG  
ACACTCCCAGAGAAGTCCCCGTCAAGGGCTGTGGACATAGTTAATCCGGAAATACAATGACGATTCATCCGACCTGAC  
ATACATTAATAATTAACAATATGAAATTCAACTCATTGTTAGGGTTGTTAATTTCACACATACGATTCTGC  
GAACCTCAAAAGCATCGGGAAATAACACCATGAAAAAAATGCTACTCGCTACTGCGCTGGCCCTGTTATTACAGGATGT  
GCTCAACAGACGTTACTGTTAAAACAAACCGGAGCAGTAGCACCAGGAAACCATCACCCATCATTCTCGTTTC  
TGGATTGGGAGAAGAAAATGTCGATGCAAGCAGGAAATTGTCGGCGCAGAAAATGTTAAAACAGAAACCCAGC  
AAACATTGTAATGGATTGCTCGGTTTATTACTTTAGGCATTACTCCGCTGGAAGCGCGTGTATTGCTCACAA  
TAATTGCACTGAGTTGCCATCGCAGATATGGCAACTCTATCTGCACTGCTCATTAATATACTTCTGGGTTCCCTCCAGTT  
GTTTTGCACTGATGATCAGCCTCTCTGAGGGTGAATAATCCGTTCAAGCGGTGCTGCCAGTCGGGGGAGGCTGCA  
TTATCCACGCCGGAGGCGGTGGCTCACGCACTGACTGACAGACTGCTTGATGTCACCGACGACGACCAGCGC  
AACATCATCACGCAAGACATCATTTCAGCTTAGCATCAGCTAACCTCGTGTATTGCACTGAGCGCAGCAACAT  
CACGCTACGCACTGCACTGCACTGCAATTGCCGCTCGCCAGCTCAGTCTCTGGCATTGGTGCCTGGGTTTG  
TAGGTAATGGCGTTATCACGGTAATGATTAACAGCCATGACAGGAGACGATGATGCAAGATAACCAAGAGCGGAGATAAT  
CGCGGTACTCTGCTCATACATCAATCTCTGACCGTTCCGCCGCTTGTGAAATTGCAATCAGGCTGTCAGCCT  
ATGCTGAACGACATAACCAGGCCGGCAGTGAAGCCCAGATATTGCTGCAACGGTGATTGCCGACGGATATCAC  
CACGATCAATCATAGGTAAGGCCACGCTCTTAATCTGCTGCAATGCCACAGCGCTCTGACTTTCCGGAGAGAACTCT  
TTCAGGCCAAGCTGCTTGCCTAGGCATCCACCAACGGAAAGAGCTGGTAGCGTCCGGCGCTGTTGATTGAGTT  
TGGGTTAGCGTACAAGTTGCGAGGGTGATGGAGTAATCAGTAAATAGCTCTCCGCTACAATGACGTCATAACC  
GATTTCTGGTTTCTGACGTCCGTTATCAGTCCCTCCGACCACGCCAGCATATCGAGGAACGCCCTACGTTGATTATTG  
ATTCTACCATCTCTACTCCGTTTTAGCAGCGAAGCGTTGATAAGCGAACCAATGAGTCAGTACCGATGTA  
CGATAAACACGCTGTTATATAAGCGAGATTGCTACTTAGTCCGGCAAGTCAGAGAAGGTACCGAATGAACCCAGCGATA  
ATGGCGACATCGTGCCTGATTACTGTTTGTAACGCACGCCATTATATCTGCCGGAAGGTACGCCATTGCAAA  
CGCAAGGATTGCCCGATGCCCTGTTCCCTTGCCGCGAGAATGGCGGCCAACAGGTATGTTTCTGGCATTCTCATGT  
CTTACCCCCAATAAGGGATTGCTCTATTAAATTAGGAATAAGGTGATTACTGATAAGAACAAATCCAGGCTACTGTG  
TTAGTAATCAGATTGTCGTACCGGATATGCACGGGAAAACGGCAGGAGGGTGTAGCGGACCTCCGACCCGCT  
TTCACGAAGGTATGTGTAAGGCCGAGCGTAACTATTACTAATGAATTCAAGGACAGACAGTGGCTACGGCTCAGTT  
GGGTTGCTGCTGGCTGGCGGCGATGACGCCGTACGCATTGGTGTACCGGTTCTGCTTCCGGTATTGCTTAATTCA  
GCACAAACGGAAAGAGCACTGGCTAACCAACAGGCTGCCACTCTCACGATTATGACTCAATGCTTACCTGTTGCA  
ATATAAAATCCGAAACCGTTATGCAAGGCTAATCTACTATTACCTGCGAACAGTGGCTACGGCTCAGTT  
CTGCCCTGCGATGGTTGGAGTTCCAGACGATACGTGAAAGTGCACAAACTAGGGGAATCGGTAGTAAGCGCCCTCTT  
CATCTCACTACCACAAACGAGCGAATTAAACCCATCGTTGAGTCAAATTACCAATTTCATCAATAAGTCATATCATGC  
CGTTAATATGTCGCTCCGCAATCATGCTGCTAACGTGACCGCATTCAAAATGTTGCTGCAATTGACTCTT  
TTGTTGGCATTGCAACCCAGAGCGTCATACAGCGGCTAACAGTGCAGGACCGAGGTGGGTTGGTAAAGGTTGGGATTAG  
CATCGTCACAGCGCAGATGTCGCTGGCATCTTGAATAGCCGACGCCATTGCACTCTCCGACTCTTCTCGA  
CAACTCTCCCCACAGCTGTTGGCAATATCAACCGCACGCCGTACCATGGCAATCTCTGCATCTGCCACTCTTCTCGA  
GTCGCGGCACTACGGCAATAACCGCATAAGCGAATGTCGAGCAGTGCAGTACCTTGCCTAGTATTCTCGTCAAG  
CTGCCCTGCAAGG

FIG. 5D

FIG. 6A

FIG. 6B

FIG. 6C

FIG. 6

CGCCCCTGCAGGCAGCTGCGCGCTCGCTCGCTCACTGAGGCCGCCGGGCAA  
 AGCCCAGGGCGTCGGCGACCTTGGTCGCCCGGCCTCAGTGAGCGAGCGAGC  
 GCGCAGAGAGGGAGTGGCCAACTCCATCACTAGGGGTTCCCTGCCGCCACG  
 CGTGGTGGCGCGGGGTAAACTGGGAAAGTGATGTCGTACTGGCTCCGCCT  
 TTTTCCCAGGGTGGGGAGAACCGTATATAAGTGCAGTAGTCGCCGTGAAC  
 GTTCTTTTCGCAACGGGTTGCCGCCCGGCCAGGTAAGTGCCAGGGAAT  
 GTTTGTTCTTAAATACCATCGCTCCAGGGAATGTTGTTCTTAAATACCATC  
 TACTGACACTGACATCCACTTTCTTTCTCCACAGGTATCGATCCACCA  
 TGCAAATAGAGCTCTCCACCTGCTTCTTCTGTGCCTTGCATTCTGCTT  
 TAGTGCCACCAAGAGATACTACCTGGGTGCAGTGGAACTGTATGGACTAT  
 ATGCAAAGTGATCTCGGTGAGCTGCCTGGAACGCAAGATTCTCTAGAG  
 TGCCAAAATCTTCCATTCAACACCTCAGTCGTACAAAAAGACTCTGTT  
 TGTAGAATTACGGATCACCTTCAACATCGCTAACGCCAGGCCACCTGG  
 ATGGGTCTGCTAGGTCTTACCATCCAGGCTGAGGTTATGATACTGGTCA  
 TTACACTTAAGAACATGGCTTCCATCCTGTCAGTCTCATGCTGTTGGTGT  
 ATCCTACTGGAAAGCTCTGAGGGAGCTGAATATGATGATCAGACCAGTC  
 AGGGAGAAAGAGATGATAAAGTCTCCCTGGTGAAGCCATACATATGTCT  
 GGCAGGTCTGAAAGAGAATGGTCAATGGCCTCTGACCCACTGTGCCTTAC  
 CTACTCATATCTTCTCATGTGGACCTGGTAAAAGACTTGAATTCAAGGCC  
 ATTGGAGCCCTACTAGTATGTAGAGAAGGGAGTCTGGCCAAGGAAAGACAC  
 AGACCTTGACAAATTACTACTTTGCTGTATTGATGAAGGGAAAAG  
 TTGGCACTCAGAAACAAAGAACTCCTGATGCAGGATAGGGATGCTGCATCT  
 GCTCGGGCCTGGCCTAAAATGCACACAGTCATGGTTATGTAACACAGGTCTC  
 TGCCAGGTCTGATTGGATGCCACAGGAAATCAGTCTATTGGCATGTGATTGG  
 AATGGGCACCACTCCTGAAAGTCACTCATATTCTCGAAGGTACACATTT  
 CTTGTGAGGAACCATGCCAGGCGTCTGGAAATCTGCCAATAACTTCC  
 TTACTGCTCAAACACTCTGATGGACCTGGACAGTTCTACTGTTGTCA  
 TATCTCTTCCCACCAACATGATGGCATGGAAGCTTATGTCAGGAAAGACAGC  
 TGTCCAGAGGAACCCCAACTACGAATGAAAATAATGAAGAAGCGGAAGACT  
 ATGATGATGATCTTACTGATTCTGAAATGGATGTTGTCAGGTTGATGATGA  
 CAACTCTCCTCCTTATCCAAATTGCTCAGTTGCCAAGAAGCATCCTAAA

FIG. 6A

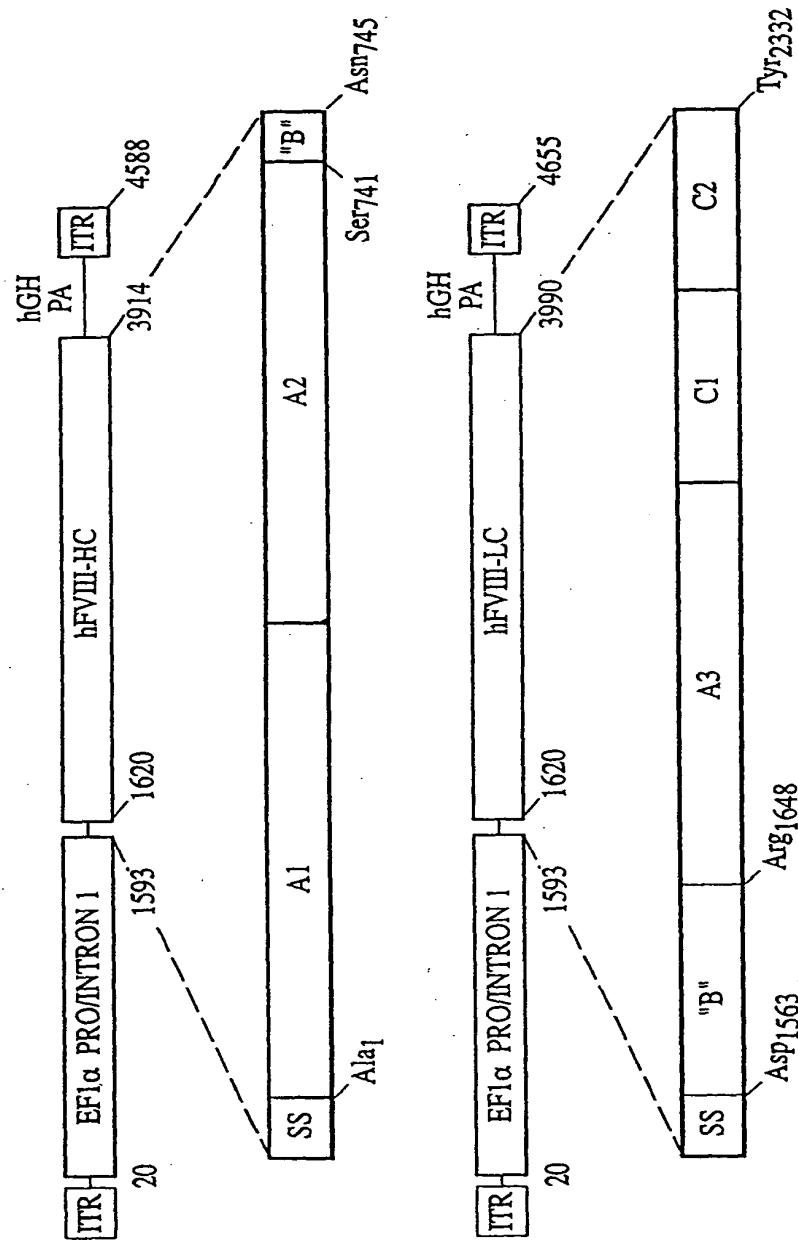


FIG. 7

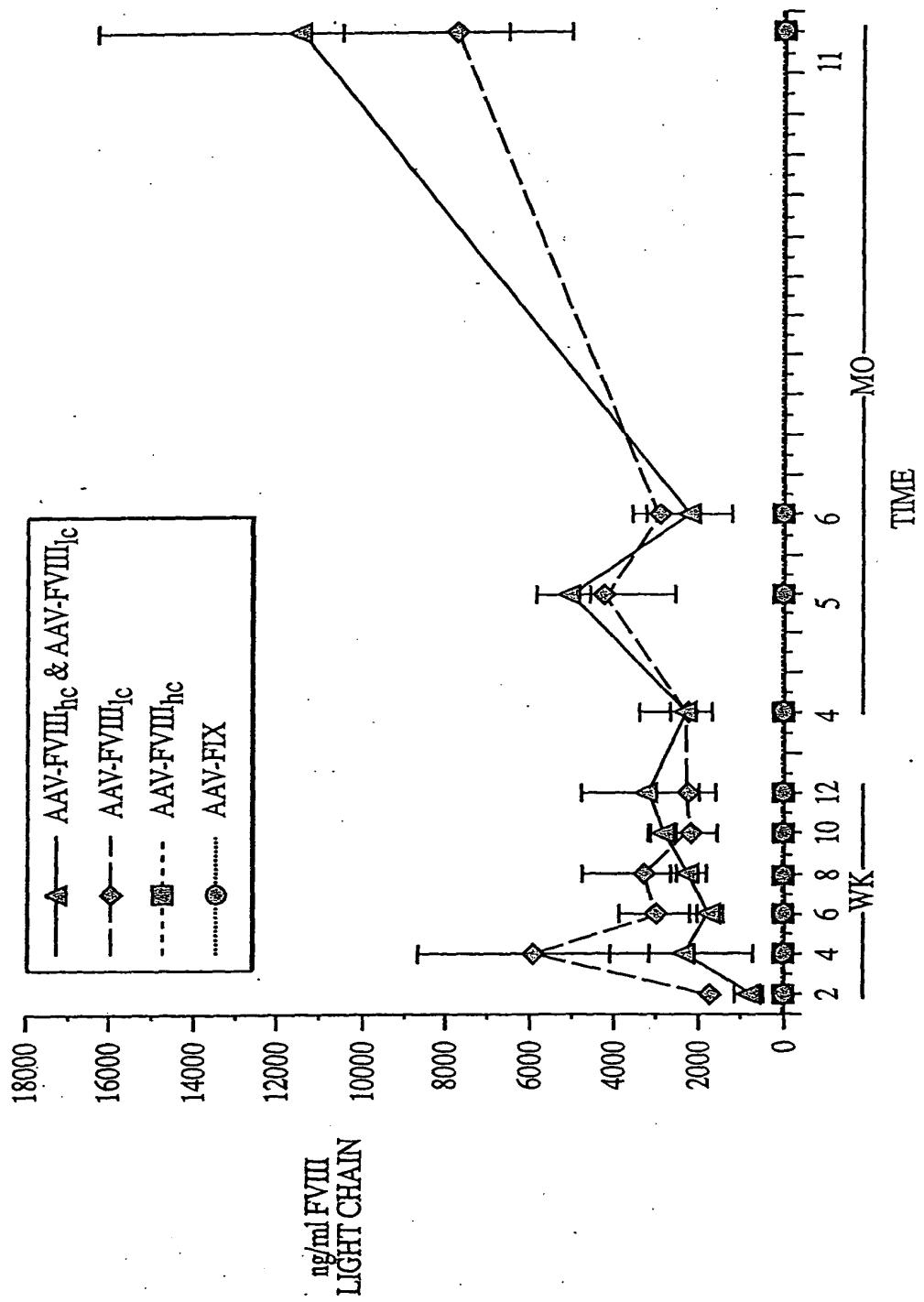


FIG. 8

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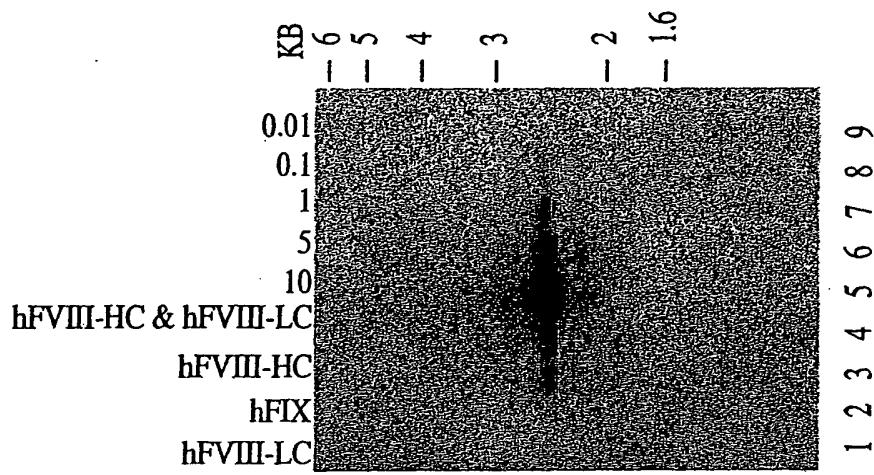


FIG. 9B

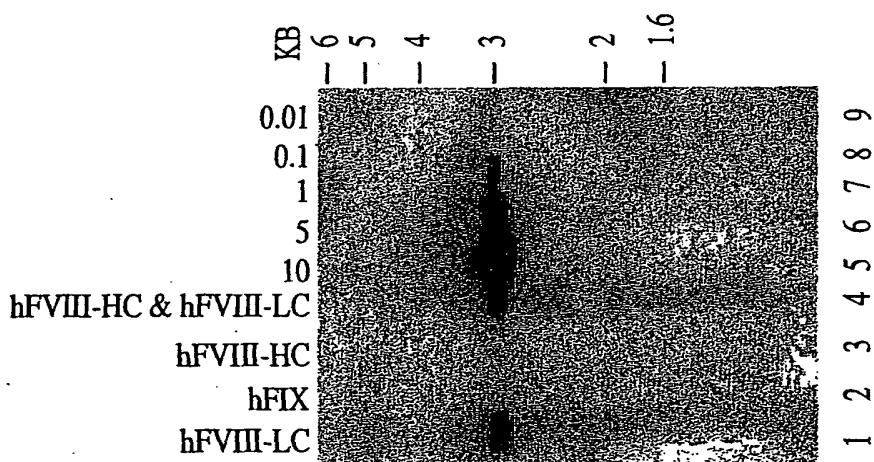


FIG. 9A

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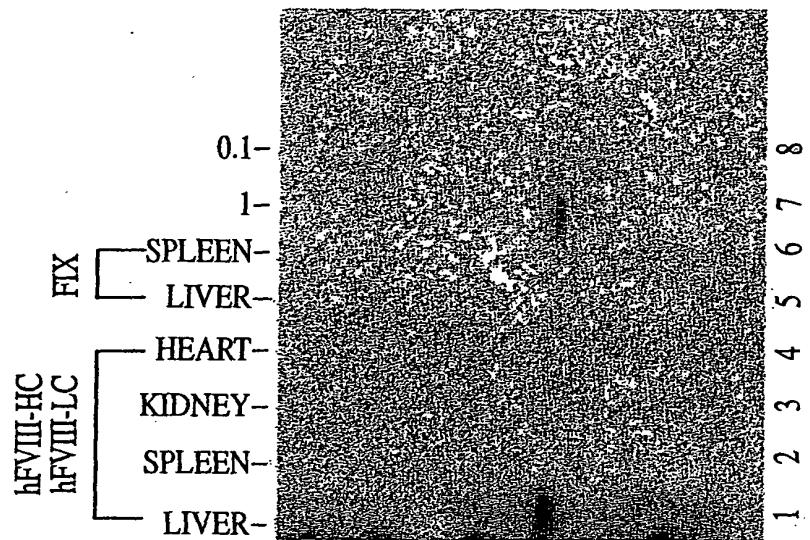


FIG. 10B

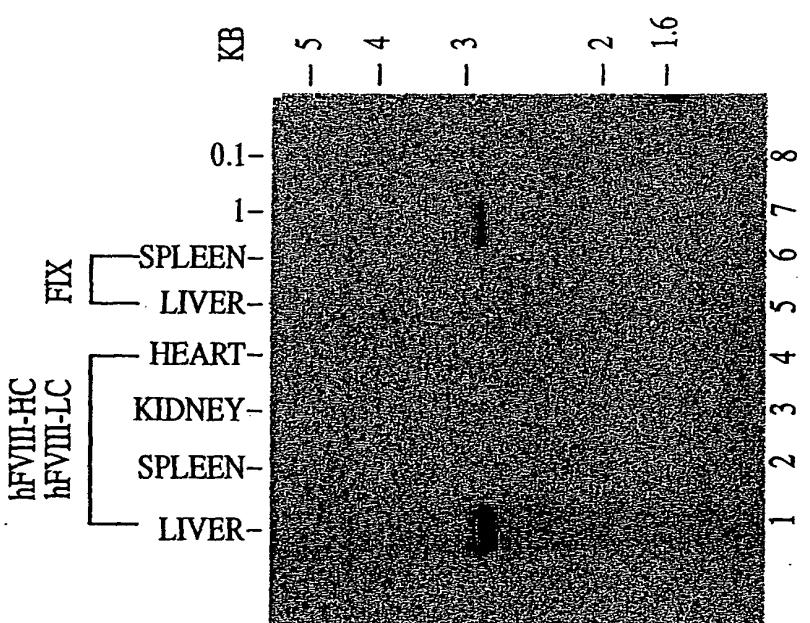


FIG. 10A

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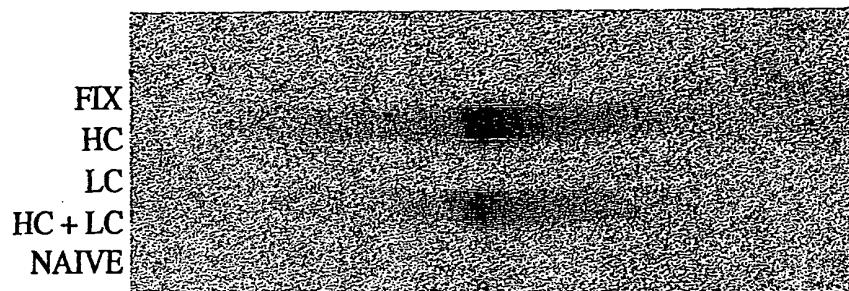


FIG. 11B

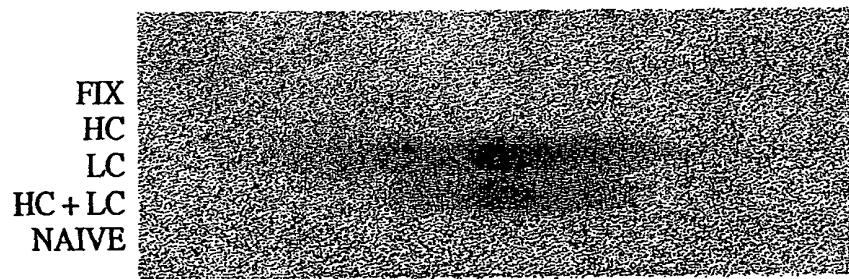


FIG. 11A